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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,886	05/18/2006	Hyo-Chung Lee	406-0008	8580

22511 7590 12/01/2009
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EXAMINER

GREECE, JAMES R

ART UNIT	PAPER NUMBER
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2873

NOTIFICATION DATE	DELIVERY MODE
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12/01/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/595,886	Applicant(s) LEE ET AL.	
	Examiner JAMES R. GREECE	Art Unit 2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 November 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 24-48 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 40-44 is/are allowed.
- 6) ☒ Claim(s) 24-35, 37-39, & 45 is/are rejected.
- 7) ☒ Claim(s) 36 and 46-48 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/11/2009</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114.

Applicant's submission filed on 11/11/2009 has been entered.

Claim Objections

2. At least claims 35, 37, 40 are objected to because of the following informalities: The limitations in parenthesis are improper and should be either deleted or incorporated into the claim directly. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 24-35, 37-38, & 45 are rejected under 35 U.S.C. 102(b) as being anticipated by Onuki et al (US 2002/0176148 A1).

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Re claim 24 Onuki et al teaches a liquid-filled lens driver for receiving a lens driver control signal from an image signal processor and driving a liquid-filled lens, comprising:
an input/output interface unit exchanging the lens driver control signal and status information of the liquid-filled lens with the image signal processor according to a certain signal transmission protocol (see at least numeral 130); a system clock generation unit for generating a system clock (see at least numeral 130); a high voltage generation unit for generating high voltage, which can drive the liquid-filled lens, using low voltage of a battery of a mobile information terminal (see at least 0097); a voltage generation unit for providing reference voltage and bias voltage for operating the liquid-filled lens driver (see at least 0097-0098); a drive signal generation unit for generating a final drive signal for the liquid-filled lens by generating a low level differential waveform for driving the liquid-filled lens and boosting the low level differential waveform to a high voltage level generated by the high voltage generation unit (see at least 0097-0098); and a control unit for controlling the function units so that they can drive the liquid-filled lens (see at least numeral 130).

Re claim 25 Onuki et al teaches wherein the liquid-filled lens driver is provided to each of liquid-filled lens, and is provided with a unique Identification (ID) configured to allow the image signal processor to select the liquid filled lens (see at least 0110).

Re claim 26 Onuki et al teaches wherein the exchanging of the lens driver control signal and the status information of the liquid-filled lens by the input/output interface unit is performed by a 2-

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wire serial communication method using: a clock signal wire for exchanging a control clock signal that controls the exchanging of image information (see at least 0097); and a data signal wire for exchanging data related to the image information and determining power status of the liquid filled lens driver (see at least 0108).

Re claim 27 Onuki et al teaches wherein the determination of the power status of the liquid-filled lens driver is performed in such a way as to stop operation of the liquid-filled lens driver by disabling all reference voltage and bias voltage of the liquid-filled lens driver and turning off the system clock generation unit when a power-off mode signal is received (see at least 0019).

Re claim 28 Onuki et al teaches wherein the determination of the power status of the liquid-filled lens driver is performed in such a way as to normally operate the liquid-filled lens driver by enabling all reference voltage and bias voltage of the liquid-filled lens driver and turning on the system clock generation unit when a normal power mode signal is received (see at least 0220).

Re claim 29 Onuki et al teaches wherein the exchanging of the lens driver control signal and the status information of the liquid-filled lens by the input/output interface unit is performed by a 3-wire serial communication method using: a clock signal wire for exchanging a control clock signal that controls the exchanging of image information (see at least 0097); a data signal wire for exchanging data related to the image information (see at least 0108); and a power control signal wire for determining power status of the liquid-filled lens driver (see at least 0183).

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Re claim 30 Onuki et al teaches wherein the determination of the power status of the liquid-filled lens driver is performed in such a way as to stop operation of the liquid-filled lens driver by disabling all reference voltage and bias voltage of the liquid-filled lens driver and turning off the system clock generation unit when a power-off mode signal is received (see at least 0019).

Re claim 31 Onuki et al teaches wherein the determination of the power status of the liquid-filled lens driver is performed in such a way as to normally operate the liquid-filled lens driver by enabling all reference voltage and bias voltage of the liquid-filled lens driver and turning on the system clock generation unit when a normal power mode signal is received (see at least 0220).

Re claim 32 Onuki et al teaches wherein the exchanging of the lens driver control signal and the status information of the liquid-filled lens by the input/output interface unit is performed in such a way as to receive an effective data signal through a data signal wire by synchronizing with a clock signal transmitted through a clock signal wire (see at least 0100).

Re claim 33 Onuki et al teaches wherein the exchanging of the lens driver control signal and the status information of the liquid-filled lens by the input/output interface unit is performed in such a way as to set a register value in the input/output interface and read/write information from/in the register (see at least 0020).

Re claim 34 Onuki et al teaches wherein the exchanging of the lens driver control signal and the status information of the liquid-filled lens by the input/output interface unit is performed while

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controlling each liquid-filled lens driver using a unique ID of the liquid-filled lens driver (see at least 0110).

Re claim 35 Onuki et al teaches wherein the high voltage generation unit comprises: a converter module for Direct Current (DC) converting voltage of a battery of the mobile information terminal into high voltage for driving the liquid-filled lens (see at least 0097); a voltage conversion clock generation module for generating a voltage conversion clock that is used for the DC voltage conversion by the converter module (see at least numeral 130); and a voltage conversion arresting module for stopping voltage conversion by stopping operation of the converter module when the voltage conversion is performed such that the high voltage generated by the converter module exceeds voltage for driving the liquid-filled lens (see at least numeral 130)

Re claim 37 Onuki et al teaches wherein the reference/bias voltage generation unit comprises: a reference/bias voltage provision module for providing reference and bias voltage to electronic elements of the liquid-filled lens driver(see at least numeral 130); and a reference voltage generation module for generating analog voltage corresponding to a curvature value (drive voltage) of the liquid-filled lens transmitted from the image signal processor (see at least 0130).

Re claim 38 Onuki et al teaches wherein the drive signal generation unit comprises: a drive signal clock generation module for generating a drive clock in a waveform period

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of a signal for driving the liquid-filled lens (see at least numeral 130); a low voltage differential signal generation module for generating two low voltage differential signals having a voltage level of a battery of the mobile information terminal based on the drive clock (see at least 0100); and a high voltage differential signal generation module for generating plus and minus differential drive signals, that is, the final drive signal for the liquid-filled lens, by increasing a voltage amplitude of the low voltage differential signal to a level of the high voltage generated by the high voltage generation unit (see at least 0100 and 0097).

Re claim 45 Onuki et al teaches a drive signal clock generation module for generating a drive clock in a waveform period of a signal for driving the liquid-filled lens (see at least numeral 130), a low voltage differential signal generation module for generating two low voltage differential signals having a voltage level of a battery of the mobile information terminal based on the drive clock (see at least 0100); and a high voltage differential signal generation module for generating plus and minus differential drive signals, that is, the final drive signal for the liquid-filled lens, by amplifying a voltage amplitude of the low voltage differential signal to a level of the high voltage generated by a high voltage generation unit (see at least 0097).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Onuki et al (US 2002/0176148 A1).

Re claim 39, Onuki et al does not explicitly teach wherein the input/output interface unit, the system clock generation unit, the high voltage generation unit, the reference/bias voltage generation unit, the drive signal generation unit, and the control unit are integrated in a single chip.

However the examiner notes that it would have been an obvious matter of design choice to microminiaturize the above noted devices, since such a modification is well known in the art and further would have required a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237

Allowable Subject Matter

8. Claims 40-44 are allowed.

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9. Claims 36 & 46-48 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter:

The prior art taken singularly or in combination fails to anticipate or fairly suggest the limitations of the independent claims, in such a manner that a rejection under 35 U.S.C. 102 or 103 would be proper.

In regard to dependent claim 36, the prior art taken either singly or in combination fails to anticipate or fairly suggest a liquid filled lens driver including the specifics of the voltage division and conversion modules as disclosed in the claim; recited together in combination with the totality of particular features/limitations recited therein.

In regard to independent claim 40, the prior art taken either singly or in combination fails to anticipate or fairly suggest a high voltage generation circuit to drive a liquid filled lens including the specifics of multiple clocks utilizing different frequencies; recited together in combination with the totality of particular features/limitations recited therein.

In regard to dependent claim 46, the prior art taken either singly or in combination fails to anticipate or fairly suggest a drive signal generation circuit to drive a liquid filled lens including the specifics of multiple clocks utilizing different frequencies; recited together in combination with the totality of particular features/limitations recited therein.

In regard to dependent claim 47, the prior art taken either singly or in combination fails to anticipate or fairly suggest a drive signal generation circuit to drive a liquid filled lens including

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the specifics of the terminal configuration as disclosed; recited together in combination with the totality of particular features/limitations recited therein.

In regard to dependent claim 48, the prior art taken either singly or in combination fails to anticipate or fairly suggest a drive signal generation circuit to drive a liquid filled lens including the specifics of a voltage level converter and first and second buffers; recited together in combination with the totality of particular features/limitations recited therein.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES R. GREECE whose telephone number is (571)272-3711. The examiner can normally be reached on M-Th 7:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Mack can be reached on 571-272-2333. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/James R Greece/

Examiner, Art Unit 2873

11/20/2009

/Joseph Martinez/

Primary Examiner, Art Unit 2873